

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A gas distribution plate for use in a semiconductor fabrication apparatus including a semiconductor processing chamber, the gas distribution plate comprising:

a plurality of drilled holes for passing process gases to the semiconductor processing chamber; and

a portion having a machined ceramic surface exposed to the process chemistry used in the semiconductor fabrication apparatus, ~~wherein the portion of the gas distribution plate has substantially no micro-defects about 50 micrometers or greater,~~ wherein the micro-defects are substantially eliminated by annealing the portion, subsequent to machining the ceramic surface, wherein the plurality of drilled holes pass through the machined ceramic surface, wherein the portion includes at least one of Si₃N₄ and SiC.

2. (Previously Presented) A gas distribution plate as recited in claim 1 wherein micro-defects are substantially eliminated before implementation within the semiconductor fabrication apparatus.

3. (Canceled)

4. (Original) A gas distribution plate as recited in claim 1 wherein the portion includes at least one surface of the distribution plate which is exposed to the internal regions of the semiconductor processing chamber.

5. (Previously Presented) A gas distribution plate as recited in claim 1 wherein, during its operation, the gas distribution plate produces less than 0.1 particle defects per square centimeter for a wafer processed in the semiconductor fabrication apparatus over the entire operating life of the gas distribution plate.

6. (Original) A gas distribution plate as recited in claim 1 wherein the gas distribution plate does not substantially diminish wafer yield over the entire operating life of the gas distribution plate.

7. (Previously Presented) A gas distribution plate as recited in claim 6 further comprising at least one distribution channel, wherein the at least one distribution channel is machined to a back face of the gas distribution plate.

8-10. (Canceled)

11. (Previously Presented) A gas distribution plate as recited in claim 1 wherein the ceramic surface is included in a portion of the gas distribution plate which faces the semiconductor processing chamber.

12. (Currently Amended) A plasma-based fabrication apparatus, comprising:

a plasma chamber that receives process gases and forms a plasma therefrom; and

a gas distribution plate including a plurality of holes that supply the process gases into said plasma chamber, a portion of said gas distribution plate having a machined ceramic surface and being exposed to the process chemistry used in said plasma chamber, ~~wherein the portion of the gas distribution plate has substantially no micro-defects about 50 micrometers or greater and~~ wherein said gas distribution plate is pretreated by annealing at a controlled temperature between about 1500 degrees Celsius to 1600 degrees Celsius for a prolonged

time, wherein the prolonged time is from about 5 to 10 hours, subsequent to machining said ceramic surface.

13. (Previously Presented) A plasma-based fabrication apparatus as recited in claim 12 wherein said plasma-based fabrication apparatus fabricates semiconductor devices.

14. (Previously Presented) A plasma-based fabrication apparatus as recited in claim 12 wherein said plasma-based fabrication apparatus is a semiconductor etch machine.

15-17. (Canceled)

18. (Currently Amended) A plasma-based fabrication apparatus as recited in claim 12 wherein the prolonged time is from about 5 to 10 hours and where a second machining of only ceramic surfaces that are not exposed to plasma is performed after the annealing.

19-39. (Canceled)

40. (Previously Presented) A plasma-based fabrication apparatus, as recited in claim 12, wherein the plurality of holes are a plurality of drilled holes, wherein the pretreating by annealing is done after formation of the plurality of drilled holes.

41-42. (Canceled)

43. (Currently Amended) A plasma-based fabrication apparatus, as recited in claim 12 wherein the plate includes one of Si_3N_4 , Al_2O_3 , AlN and SiC .

44. (New) The gas distribution plate as recited in claim 1 where a second machining of only ceramic surfaces that are not exposed to plasma is performed after the annealing.

45. (New) The gas distribution plate as recited in claim 1 wherein said gas distribution plate is pretreated by annealing at a controlled temperature between about 1500 degrees Celsius to 1600 degrees Celsius from about 5 to 10 hours, subsequent to machining said ceramic surface.